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ABSTRACT

This guide outlines the minimum standards for entrance into the fire prevention career field in California. It contains descriptions of 50 tasks. Each task description consists of nine subsections. The task title briefly identifies the content of the task. The occupational analysis subsection identifies the block, unit, and task within the California Fire Service Occupational Analysis, which parallels the task contained in this guide. The next subsection identifies the location of the task in the phamphlet provided by the National Fire Protection Association. The level of learning for each task is identified in the level subsection. The performance goal section contains summaries of adequate preparation for written examinations, and specific standards for written and oral tests. The learning content subsection includes a brief summary of task requirements. Sources where training in the task may be obtained are listed in the training resources subsection. (MN)

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MINIMUM ENTRY STANDARDS

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FOR

FIRE PREVENTION OFFICERS

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
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Career Development Guide

MINIMUM ENTRY STANDARDS FOR FIRE PREVENTION OFFICERS

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INTRODUCTION

Health and Safety Code Section 13142.4

"The State Board of Fire Services, in cooperation with the Office of the State Fire Marshal, shall establish and validate recommended minimum standards for fire protection personnel and fire protection instructors at all career levels."

Minimum Performance Standards are being developed for each rank in the fire service - from entry level fire fighter to department chief. They are being published in the form of CAREER DEVELOPMENT GUIDES.

These Guides identify the tasks each rank is expected to perform; the learning content is described and each task is assigned a recommended level of proficiency. Student performance goals are related to measureable minimum standards specified in authoritative reference sources. In addition, a comprehensive list of additional reference resources and learning aids is provided.

This MINIMUM ENTRY STANDARD FOR FIRE PREVENTION OFFICERS Career Development Guide contains the minimum performance standards for entry into the fire prevention career field . . . either from inside or outside the fire service.

Once you have achieved these performance goals, you will be well prepared to advance on to the next rung of the fire prevention career ladder - FIRE PREVENTION OFFICER I.

PHILIP C. FAVRO
State Fire Marshal
Chairman, SBFS

PREFACE

This Guide contains the minimum standards for entrance into the fire prevention profession.

The preparation of this Guide would not have been possible without the work and constructive criticisms of the Professional Standards and Curriculum Advisory Committee of the California Fire Prevention Officers Association. Members of this committee included:

Lon Cahill, Orange City Fire Department
Lyle Goodrich, California State Fire Academy
Steve Hart, Monterey Fire Department
Joe Marino, Rincon Valley Fire Department
Ted Marsh, Ventura County Fire Department
Ray Martin, Los Angeles City Fire Department
Al McKendry, Redwood City Fire Department
Jim Meidl, California State Fire Marshal's Office
Lynne Michaelis, Fountain Valley Fire Department
Ken Slamon, Fremont Fire Department
Karen Straub, Mountain View Fire Department

Persons using this Guide should become familiar with its format. Please note the following explanations.

The Task Title briefly identifies the content of the task.

The Occupational Analysis sub-section identifies the Block, Unit and Task within the California Fire Service Occupational Analysis which parallels the task contained in this Guide.

The NFPA #1031 sub-section identifies the location of the task in the pamphlet produced by the National Fire Protection Association. Occasionally, several tasks in NFPA #1031 have been combined to create a meaningful performance goal.

The Level sub-section identifies the level of learning for this task. This level was determined by the Advisory Committee.

Briefly, Level 1 means the ability to recognize, identify, locate and follow directions. Level 2 means the ability to interpret, select, solve. Level 3 means the ability to transfer learning, develop methods, analyze problems.

The Performance Goal section is divided into three parts. The Given portion of the performance goal often contains the phrase "A summary of...". This summary of required knowledge may be obtained through self-study, through classroom participation or other means.

In the Performance sub-section, the phrase "which would include " means that all of the stated subject matter must be considered during the learning process as it will become part of the written examination. The

phrase "which might include" means that there is some leeway and the student should study those portions of the subject matter which would be valuable.

The Standard sub-section is keyed to an authoritative text. The complete titles of these texts are given in the Bibliography of this Guide. Those portions which require a written or verbal test demand at least 70% accuracy.

The Learning Content includes a brief summary of the task requirements, often in the language contained in NFPA #1031.

The Learning Resources sub-section lists sources where training in this task may be obtained. Two learning resources apply to all tasks included in this Guide and will not be repeated in each task analysis:

1. Self-study of the required knowledge.

2. The Community College Core Curriculum Course entitled "Fundamentals of Fire Prevention".

MINIMUM ENTRY STANDARDS FOR FIRE PREVENTION OFFICERS

N.F.P.A. #1031 Sub-section	TASK TITLE
4-1.1	Identify Legally Established Responsibilities and Empowerment
4-1.2, 4-1.5	Identify Procedures for Correcting Fire Hazards and For Modification of Requirements
4-2.1.1 to 4-2.1.7	Describe Properties of Flamable and Combustible Liquids
4-2.1.8	Identify Basic Classes of Flamable and Combustible Liquids
4-2.2.2.1	Identify Fire Hazards of Flamable and Combustible Liquids
4-2.2.2	Identify the Hazards When Transferring or Dispensing Flamable and Combustible Liquids
4-2.2.4, 4-2.2.5	Identify Ignition Sources and Explosive Atmospheres
4-2.6.1	Identify Recommended Practices and Procedures for Storage of Flamable and Combustible Liquids
4-2.6.2, 4-2.6.4, 4-2.7.2, 4-2.7.4	Identify Acceptable Containers for Flamable and Combustible Liquids
4-2.7.1	Identify Recommended Practices and Procedures for Inside Storage of Flamable and Combustible Liquids
4-2.8.1	Identify Techniques of Flamable and Combustible Liquid Fire Extinguishment
4-2.9.1	Identify the Regulatory Labelling and Placarding Systems for Flamable and Combustible Liquids
4-3.1.1 to 4-3.1.6	Identify Properties of Compressed and Liquified Gases

N.F.P.A. #1031 Sub-section	TASK TITLE
4-3.2.1 to 4-3.2.3	Describe Fire Hazards of Compressed and Liquefied Gases
4-3.8.1	Identify the Regulatory Labelling and Placarding Systems for Compressed and Liquefied Gases
4-4.1.1	Identify the Classification of Explosives
4-4.5.1	Identify the Regulatory Labelling and Placarding Systems for Explosives and Fireworks
4-5.1.1	Identify Regulatory Labelling and Placarding System for Hazardous Materials
4-5.2.1	Identify Common Corrosives
4-5.2.2	Identify Common Reactive Materials
4-5.2.3	Identify Common Unstable Materials
4-5.2.4	Identify Common Toxic Materials
4-5.2.5	Identify Common Radioactive Materials
4-5.2.6	Identify Common Oxidizing Materials
4-5.2.7	Identify Fire Hazard Properties of Various Types of Plastic
4-5.2.9.1	Identify Common Combustible Metals
4-5.2.10.1, 4-5.2.10.2	Identify Fire and Explosive Characteristics of Combustible Dusts and Name Common Examples
4-6.1.1, 4-6.1.2	Describe Types, Characteristics and Capabilities of Portable Fire Extinguishers
4-6.1.3, 4-6.1.6	Identify How the Operational Readiness of an Extinguisher is Basically Determined
4-6.2.1	Identify Basic Principles of Fixed Fire Extinguishing Systems used to Protect Special Hazards

N.F.P.A. #1031 Sub-section	TASK TITLE
4-6.3.1	Identify different Types of Sprinkler Systems
4-6.3.2	Identify Basic Principles and Features of Sprinklers Systems and Appurtances
4-6.4.1, 4-6.4.4	Identify Standpipes and Hose Systems
4-6.4.2, 4-6.4.3	Identify Operation, Basic Priciples and Component Parts of Standpipe and Hose Systems and Appurtances
4-6.5.1, 4-6.5.2	Identify the Purposes of Private Water Systems
4-6.6.1, 4-6.6.2	Identify Heat and Smoke Detection Systems and Devices
4-6.7.1, 4-6.7.2, 4-6.7.6	Identify Basic Classifications and Functions of Local Fire Alarm Systems and Devices
4-6.7.4	Identify Principal Functions of Municipal Fire Alarm Systems
4-7.1, 4-7.2	Identify Fire Hazards and Safeguards for Heating and Cooking Equipment
4-8.2, 4-8.3	Identify Electrical Fire and Life Hazards and Identify Safety Devices
4.9.1.1	Identify Factors Relating to Life Safety in Buildings
4-9.1.2.1	Identify Means of Egress Requirements
4-9.1.4.1	Describe Relationship of Fire Protection Life Safety to Building Construction
4-9.1.4.3, 4-9.1.4.4	Define purposes of Fire Doors, Windows, Shutters and Closing Devices
4-9.1.4.6, 4-13.4	Identify Building Construction Components

N.F.P.A. #1031 Sub-section	TASK TITLE
4-9.1.5.1	Identify Basic Fire Hazards of Building Service Equipment
4-10.1	Identify General Fire Safety Practices
4-11.1.8	Identify the Responsibilities of Fire Prevention Personnel
4-11.3.1	Identify Essential Equipment for Code Enforcement Procedures
7-2.10, 7-2.11	Describe Construction Methods and Materials Affecting Fire and Fire Spread

Task Title:	Identify Legally Established Responsibilities and Empowerment
Occupational Analysis:	Block XVII, Unit C, Task 1
NFPA #1031:	4-1.1
Level:	1
Performance Goal:	
Given:	A summary of the federal and state codes which establish the responsibilities and empowerments of a fire inspector
Performance:	Identify the legally established responsibilities and empowerment related to the performance of the duties of a fire inspector
Standard:	With 70% accuracy, according to information contained in NFPA Inspection Manual, pp. 21 to 24
Learning Content:	Legal responsibilities of a fire inspector; empowerment regulations for a fire inspector

Reference Resources:

1. Federal and state laws and regulations, including acts of the State Fire Marshal, fire hazard regulations, building codes, etc.
2. NFPA, Fire Protection Handbook, Appendix D
3. IFSTA Manual #110, pp. 7 to 8
4. Bahme, Fire Service and the Law, pp. 111 to 112

Task Title:	Identify Procedures for Correcting Fire Hazards and for Modification of Requirements
Occupational Analysis:	Block XI, Unit C, Task 3
NFPA #1031:	4-1.2, 4-1.5
Level:	1
Performance Goal:	
Given:	1. A summary of the procedures used to correct fire hazards discovered during inspections 2. A summary of the procedures used to modify code requirements
Performance:	1. Identify how corrective procedures are initiated for fire hazards discovered during fire inspections 2. Identify the established procedures employed to modify existing code requirements
Standard:	With 70% accuracy, according to information contained in Uniform Building Code, pp. 25 and 28 (Sections 104, 107 and 204) and Uniform Fire Code, pp. 16 to 20 (Sections 1.214 and 1.216)
Learning Content:	Procedures for correcting fire hazards discovered during fire inspections, procedures to modify existing requirements

Learning Resources:

1. Community college course on Related Codes and Ordinances

Reference Resources:

1. Applicable rules, regulations, laws and codes
2. Bahme, Fire Service and the Law, pp. 111 to 159
3. ICMA, Municipal Fire Administration, pp. 237 and 241 to 243

Task Title:	Describe Properties of Flammable and Combustible Liquids
Occupational Analysis:	Block V, Unit A, Task 7
NFPA #1031:	4-2.1.1, 4-2.1.2, 4-2.1.3, 4-2.1.4, 4-2.1.5, 4-2.1.6, 4-2.1.7
Level:	2
Performance Goal:	
Given:	1. Definitions of the general properties of flammable and combustible liquids, which would include: - Flash point - Ignition temperature - Flammable (explosive) limits - Specific gravity - Vapor density - Boiling point 2. A summary of the basic effects of temperature and pressure on flammable and combustible liquids
Performance:	1. Describe the general properties of flammable and combustible liquids and how these properties relate to the hazard of the liquids 2. Describe the basic effects of temperature and pressure on flammable and combustible liquids
Standard:	With 70% accuracy, according to information contained in NFPA Fire Protection Handbook, pp. 3-18 to 3-22 and NFPA Fire Inspection Manual, pp. 146 to 149
Learning Content:	General properties of flammable and combustible liquids; relationship of properties to the hazards of the liquid; basic effects of temperature and pressure on flammable and combustible liquids

Learning Resources:

1. Community college course on Hazardous Materials

Reference Resources:

1. NFPA, Standard #325, Properties of Flammable Liquids and Cases

Task Title:	Identify Basic Classes of Flammable and Combustible Liquids
Occupational Analysis:	Block V, Unit A, Task 7
NFPA #1031:	4-2.1.8
Level:	1
Performance Goal:	
Given:	A summary of the different classes of flammable and combustible liquids, which would include: - Class I - Class II - Class III
Performance:	Identify the various classes of flammable and combustible liquids and how their classification is related to their fire hazard
Standard:	With 70% accuracy, according to information contained in NFPA Fire Protection Handbook, pp. 3-19
Learning Content:	Classification of flammable and combustible liquids; relationship of classification to fire hazard

Learning Resources:

1. Community college course on Hazardous Materials

Reference Resources:

1. NFPA Pamphlet #30, Flammable Liquids Code
2. NFPA Inspection Manual, pp. 147

Task Title:	Identify Fire Hazards of Flammable and Combustible Liquids
Occupational Analysis:	Block XI, Unit B, Task 6
NFPA #1031:	4-2.2.1
Level:	1
Performance Goal:	
Given:	A summary of methods employed to prevent fires and explosions during the storage, handling and use of flammable and combustible liquids
Performance:	Identify the basic principles underlying the prevention of fires and explosions during the storage, handling and use of flammable and combustible liquids, which would include: - Separation - Isolation - Segregation - Limitation
Standard:	With 70% accuracy, according to information contained in NFPA Fire Protection Handbook, pp. 3-18
Learning Content:	Principles underlying the prevention of fires during the storage, handling and use of flammable and combustible liquids

Learning Resources:

1. Community college course on Hazardous Materials

Reference Resources:

1. NFPA Inspection Manual, pp. 146 to 151
2. NFPA #30, Flammable Liquids Code
3. Uniform Fire Code, pp. 118 to 119

Task Title:	Identify the Hazards when Transferring or Dispensing Flammable and Combustible Liquids
Occupational Analysis:	Block XI, Unit B, Task 6
NFPA #1031:	4-2.2.2
Level:	1
Performance Goal:	
Given:	1. A summary of the hazards attendant to the transfer or dispensing of flammable and combustible liquids 2. A summary of the methods employed to prevent fires and explosions during the transfer or dispensing of flammable and combustible liquids
Performance:	Identify the hazards attendant to the transfer and dispensing of flammable and combustible liquids and the methods employed to prevent fire and explosions, which would include: - Methods of dispensing - Piping, drains and traps - Cleanliness and housekeeping
Standard:	With 70% accuracy, according to information contained in NFPA Inspection Manual, pp. 155 to 156
Learning Content:	Hazards attendant to the transfer or dispensing of flammable and combustible liquids

Learning Resources:

1. Community college course on Hazardous Materials

Reference Resources:

1. NFPA Fire Protection Handbook, pp. 3-35 to 3-36
2. NFPA #30, Flammable Liquids Code
3. Uniform Fire Code, pp. 120 to 159

Task Title:	Identify Ignition Sources and Explosive Atmospheres
Occupational Analysis:	Block XI, Unit B, Task 6
NFPA #1031:	4-2.2.4, 4-2.2.5
Level:	1
Performance Goal:	
Given:	1. A listing of the possible sources of ignition which may be present during the storage, handling and use of flammable and combustible liquids 2. A listing of the ways that an explosive atmosphere can form in areas where flammable and combustible liquids are stored, handled and used
Performance:	1. Identify the possible sources of ignition which may be present during the storage, handling and use of flammable and combustible liquids, which would include: - Smoking and matches - Open flame heating - Electrical motors and equipment - Flames and pilot lights - Static sparks - Friction - Hot surfaces 2. Identify the ways that an explosive atmosphere can form in areas where flammable and combustible liquids are stored, handled and used, which would include: - Open containers - Leaking containers, tanks and piping - Broken containers - Heat expansion of liquid inside containers - Vapor escape from vents - Improper containers
Standard:	With 70% accuracy, according to information contained in NFPA Inspection Manual, pp. 150 to 154

Learning Content: Identify possible sources of ignition in areas where flammable liquids are stored, handled or used; identify ways in which an explosive atmosphere can form in such areas

Learning Resources:

1. Community college course on Hazardous Materials

Reference Resources:

1. NFPA Fire Protection Handbook, pp. 3-23 to 3-24
2. NFPA #30, Flammable Liquids Code
3. Uniform Fire Code, pp. 121

Task Title:	Identify Recommended Practices and Procedures for Outside Container Storage of Flammable and Combustible Liquids
Occupational Analysis:	Block XI, Unit A, Tasks 1 and 2
NFPA #1031:	4-2.6.1
Level:	1
Performance Goal:	
Given:	A summary of the recommended practices and procedures relative to the outside container storage of flammable and combustible liquids
Performance:	Identify the recommended practices and procedures for the outside container storage of flammable and combustible liquids, which would include a consideration of: - Limitation on the number of drums - Location of drum storage area - Drainage requirements - Access ways between groups of drums - Housekeeping in drum storage area - Combustible materials in drum storage areas - Handling of empty containers - Fire control requirements
Standard:	With 70% accuracy, according to information contained in NFPA Inspection Manual, pp. 151 to 153
Learning Content:	Recommended practices and procedures relative to outside container storage of flammable and combustible liquids

Learning Resources:

1. Community college course on Related Codes and Ordinances

Reference Resources:

1. Uniform Fire Code, pp. 140 to 142
2. NFPA Fire Protection Handbook, pp. 3-35
3. NFPA #30, Flammable Liquids Code, Sections 4-6 and 4-7

Task Title:	Identify Acceptable Containers for Flammable and Combustible Liquids
Occupational Analysis:	Block XI, Unit B, Task 6
NFPA #1031:	4-2.6.2, 4-2.6.4, 4-2.7.2, 4-2.7.4
Level:	1
Performance Goal:	
Given:	A summary of the acceptable flammable and combustible liquid containers for outside and inside storage
Performance:	Identify the containers which are acceptable for the inside and outside storage of flammable and combustible liquids, which would include a consideration of: - Relationship of construction (glass, metal, plastic) to classes of flammable and combustible liquids - Portable containers
Standard:	With 70% accuracy, according to information contained in NFPA #30, Flammable Liquids Code, Section 4-2
Learning Content:	Identify acceptable construction of containers for storage of flammable and combustible liquids

Learning Resources:

1. Examination of acceptable containers for outside and inside storage of flammable and combustible liquids

Reference Resources:

1. NFPA Inspection Manual, pp. 151 to 154
2. Uniform Fire Code, Sections 15.104 to 15.107

Task Title:	Identify Recommended Practices and Procedures for Inside Storage of Flammable and Combustible Liquids
Occupational Analysis:	Block XI, Unit B, Task 6
NFPA #1031:	4-2.7.1
Level:	1
Performance Goal:	
Given:	1. A summary of the recommended practices and procedures relative to the inside storage of containers of flammable and combustible liquids 2. A summary of the locations and occupancies where flammable and combustible liquids might be stored inside, which would include: - Dwellings - Apartment houses - Assembly and office occupancies - Hotels and theatres - Educational and institutional occupancies - Commercial, mercantile, industrial and processing occupancies - Storage cabinets
Performance:	Identify the recommended practices and procedures that may exist for different occupancies relative to the inside storage of flammable and combustible liquids, which would include: - Quantity limitations - Acceptable locations - Stacking limitations - Shelving - Disposal of leaking containers - Spacing of piles - Fire control requirements
Standard:	With 70% accuracy, according to information contained in Uniform Fire Code, pp. 135 to 138 (Sections 15.401 to 15.407)
Learning Content:	Recognition of recommended practices and procedures governing the inside storage of flammable and combustible liquid containers

Learning Resources:

1. On-site visitations to occupancies where containers of flammable and combustible liquids are stored inside

2. Community college course on Related Codes and Ordinances

Reference Resources:

1. NFPA Fire Protection Handbook, pp. 3-34

2. NFPA Inspection Manual, pp. 151 to 154

3. NFPA #30, Flammable Liquids Code, Sections 4-3 to 4-5

Task Title:	Identify Techniques of Flamable and Combustible Liquid Fire Extinguishment
Occupational Analysis:	Block V, Unit A, Task 7 Block XI, Unit A, Task 9
NFPA #1031:	4-2.8.1
Level:	1
Performance Goal:	
Given:	A summary of basic techniques employed to extinguish fires involving flamable and combustible liquids
Performance:	Identify the fire control methods employed on flamable and combustible liquids, which would include: - Automatic covers - Halon 1301 and Halon 1211 - Carbon dioxide - Dry chemical (sodium and potassium bicarbonite, monammonium phosphate) - Foam - Water spray (fog) - Solid water systems - Sprinkler systems
Standard:	With 70% accuracy, according to information contained in NFPA Inspection Manual, pp. 159 to 161
Learning content:	Fire control methods for flamable and combustible liquids

Learning Resources:

1. Regional training programs (Oil Fire School)
2. Community college course on Fire Tactics and Strategy

Reference Resources:

1. NFPA Fire Protection Handbook, pp. 13-2 to 13-34
2. NFPA Inspection Manual, pp. 277 to 284

Task Title:	Identify the Regulatory Labelling and Placarding Systems for Flammable and Combustible Liquids
Occupational Analysis:	Block XI, Unit A, Task 1
NFPA #1031:	4-2.9.1
Level:	1

Performance Goal:

Given:	A summary of the Department of Transportation regulations relative to the labelling and placarding of flammable and combustible liquids
Performance:	Identify the D.O.T. labels and placards for flammable and combustible liquids, which would include: - Flash points of flammable and combustible liquids - Appearance of labels - Appearance of placards - Location of labels and placards on containers and vehicles
Standard:	With 70% accuracy, according to information contained in NFPA Fire Protection Handbook, pp. 3-133 to 3-135
Learning Content:	Regulatory labelling and placarding system for flammable and combustible liquids

Learning Resources:

1. Examples of Department of Transportation labels and placards for flammable and combustible liquids
2. Community college course on Hazardous Materials

Reference Resources:

1. Code of Federal Regulations, Title 49
2. Department of Transportation, Chart #4, Newly Authorized Labels for Hazardous Materials
3. Department of Transportation, Chart #5, Placards for Hazardous Materials

Task Title: Identify Properties of Compressed and Liquified Gases

Occupational Analysis: Block V, Unit A, Task 7

NFPA #1301: 4-3.1.1, 4-3.1.2, 4-3.1.3, 4-3.1.4, 4-3.1.5, 4-3.1.6

Level: 1

Performance Goal:

Given:

1. The definition of a gas
2. A summary of the physical properties of gases, which would include:
   - Compressed gases
   - Liquified gases (NOT cryogenic)
   - Gases stored in cylinders with flamable liquids
3. A summary of the hazardous properties of gases, which would include:
   - Flamable gases
   - Non-flamable gases
4. A summary of the effect of temperature and pressure on compressed and liquified gases, which would include a consideration of:
   - Differences between compressed and liquified gases
   - Vapor densities of gases
5. A summary of how compressed and liquified gases are employed
6. A listing of common compressed and liquified gases, which might include:
   - Acetylene
   - Amonia
   - Carbon dioxide
   - Carbon monoxide
   - Chlorine
   - Cyclopropane
   - Ethylene
   - Fluorine
   - Hydrogen

- Hydrogen sulfide
- Natural gases (methane)
- Nitrous oxide
- Oxygen
- Propane
- Sulfur dioxide
- Vinyl chloride

Performance:

1. Identify the general physical properties of gases, which would include:

   - Effects of temperature and pressure on compressed and liquified gases
   - Listing gases which are shipped and stored in a compressed state, in a liquified state or in cylinders dissolved in a flamable liquid
   - Vapor densities of common gases

2. Identify how common liquified and compressed gases are used, which would include:

   - Fuel gases
   - Industrial gases
   - Medical gases

3. Identify the hazardous properties of common gases, which would include a consideration of:

   - Flamability
   - Toxicity

Standard: With 70% accuracy, according to information contained in NFPA Fire Protection Handbook, pp. 3-39 to 3-41

Learning Content: Physical properties of compressed and liquifiec gases: hazardous properties of gases: usage of common gases

Learning Resources:

1. Community college course on Hazardous Materials

Reference Resources:

1. NFPA Inspection Manual, pp. 162 to 163
2. NFPA #49, Hazardous Chemical Data

3. NFPA #325, Properties of Flammable Liquids and Gases

Task Title:	Describe Fire Hazards of Compressed and Liquefied Gases
Occupational Analysis:	Block V, Unit A, Task 7
NFPA #1031:	4-3.2.1, 4-3.2.2, 4-3.2.3
Level:	1
Performance Goal:	
Given:	1. A summary of the fire hazards associated with the typical storage, handling and use of compressed and liquefied gases 2. A summary of the possible ignition sources and fire causes relating to compressed and liquefied gases 3. A summary of the conditions which might be conducive to fire initiation and propogation of compressed and liquefied gases
Performance:	1. Describe the common ignition sources and fire causes for compressed and liquefied gases, which would include: - Flames - Compression - Sparks - Friction - Hot surfaces - Arcing - Static electricity 2. Describe how compressed and liquefied gases can burn or explode during storage, handling and use, which would include: - Expansion or pressure explosion - Cylinder failure due to overheating - Escaping vapor or gas
Standard:	With 70% accuracy, according to information contained in NFPA Fire Protection Handbook, pp. 2-9 to 2-12 and 3-39 to 3-55
Learning Content:	Fire hazards of compressed and liquefied gases; ignition sources and fire causes; fire initiation and propogation; causes of explosion

Learning Resources:

1. Community college courses on Hazardous Materials

Reference Resources:

1. Uniform Fire Code, pp. 51 to 59 and 184 to 187
2. NFPA Inspection Manual, pp. 162 to 163

Task Title:	Identify Regulatory Labelling and Placarding Systems for Compressed and Liquified Gases
Occupational Analysis:	Block XI, Unit A, Task 1
NFPA #1031:	4-3.8.1
Level:	1
Performance Goal:	
Given:	A summary of the Department of Transportation regulations relative to the labelling and placarding of compressed and liquified gases
Performance:	Identify the D.O.T. labels and placards for compressed and liquified gases, which would include: - Types of labels and placards - flamable gas, non-flamable gas, chlorine, oxygen - Appearance of labels and placards - Location of labels and placards on container and vehicles
Standard:	With 70% accuracy, according to information contained in: 1. Department of Transportation, Chart #4, Newly Authorized Labels for Hazardous Materials 2. Department of Transportation, Chart #5, Placards for Hazardous Materials
Learning Content:	Regulatory labelling and placarding system for compressed and liquified gases

Learning Resources:

1. Examples of Department of Transportation labels and placards for compressed and liquified gases
2. Community college course on Hazardous Materials

Reference Resources:

1. Code of Federal Regulations, Title 49
2. NFPA Fire Protection Handbook, pp. 3-133 to 3-135

Task Title:	Identify the Classification of Explosives
Occupational Analysis:	Block XI, Unit B, Task 7
NFPA #1031:	4-4.1.1
Level:	1
Performance Goal:	
Given:	A summary of the Department of Transportation classification system for explosives, which would include: - Class A explosives - Class B explosives - Class C explosives - Blasting agents
Performance:	Identify the classification system for explosives, which would include: - Defining each class of explosive
Standard:	With 70% accuracy, according to information contained in NFPA Fire Protection Handbook, pp. 3-69 and 3-70
Learning Content:	The classification of explosive materials

Learning Resources:

1. Community college course on Hazardous Materials

Reference Resources:

1. NFPA #495, Code for the Manufacture, Transportation, Storage and Use of Explosives
2. Uniform Fire Code, pp. 67 to 88

Task Title:	Identify the Regulatory Labelling and Placarding Systems for Explosives and Firework
Occupational Analysis:	Block XI, Unit A, Task 1
NFPA #1301:	4-4.5.1
Level:	1
Performance Goal:	
Given:	A summary of the Department of Transportation regulations relative to the labelling and placarding of explosives and fireworks
Performance:	Identify the D.O.T. labels and placards for explosives and fireworks, which would include: - Apppearance of labels and placards for Class A, Class B, and Class C explosives - Appearance of proposed label and placard for blasting agents - Location of labels and placards on container and vehicles
Standard:	With 70% accuracy, according to information contained in: 1. Department of Transportation, Chart #4, Newly Authorized Labels for Hazardous Materials 2. Department of Transportation, Chart #5, Placards for Hazardous Materials
Learning Content:	Regulatory labelling and placarding system for explosives and fireworks

Learning Resources:

1. Examples of Department of Transportation labels and placards for Explosives and fireworks
2. Community college course on Hazardous Materials

Reference Resources:

1. Code of Federal Regulations, Title 49
2. NFPA Fire Protection Handbook, pp. 3-133 to 3-135

Task Title: Identify Regulatory Labelling and Placarding System for Hazardous Materials

Occupational Analysis: Block XI, Unit A, Task 6

NFPA #1031: 4-5.1.1

Level: 1

Performance Goal:

Given:

1. A summary of the appearance of the Department of Transportation labels required on shipments of hazardous materials

2. A summary of the appearance of the Department of Transportation placards required on shipments of hazardous materials

Performance:

1. Identify the Department of Transportation labels required on shipments of hazardous materials, which would include:

   - Oxidizer
   - Organic peroxide
   - Oxygen
   - Chlorine
   - Flammable solid
   - Corrosives
   - Spontaneously combustible materials
   - Water reactive materials
   - Radioactive materials
   - Poison gas
   - Poison
   - Irritating materials
   - Etiologic agents
   - Empty containers
   - Danger (air shipments)
   - Magnetized materials (air shipments)

2. Identify the Department of Transportation placards required on shipments of hazardous materials, which would include:

   - Poison gas
   - Water reactive flammable solids
   - Radioactives
   - Oxidizers
   - Organic peroxides

- Poison
- Corrosives
- Flamable solid
- Dangerous (mixed cargos)
- Oxygen
- Chlorine
- Gasoline
- Fuel oil
- Empty tank car (rail shipments)

Standard: With 70% accuracy, according to information contained in Chart #4 - D.O.T. Hazardous Materials Warning Labels - and Chart #5 - D.O.T. Hazardous Materials Warning Placards

Learning Content: Appearance of newly authorized DOT Hazardous Materials warning labels and placards

Learning Resources:

1. Community college course on Hazardous Materials
2. Examples of D.O.T. labels and placards

Reference Resources:

1. Code of Federal Regulations, Title 49

Task Title: Identify Common Corrosives

Occupational Analysis: Block XI, Unit B, Task 7

NFPA #1031: 4-5.2.1

Level: 1

Performance:

Given:

1. A summary of the characteristics of corrosive materials
2. A listing of common examples of corrosive materials

Performance:

1. Define the phrase "corrosive material"
2. Describe the characteristics of corrosive materials, which would include:
   - Corrosive effect on flesh and metals
   - Toxicity
   - Reactivity with water and other substances
3. Identify three examples of common corrosive materials

Standard: With 70% accuracy, according to information contained in NFPA Inspection Manual, pp. 182

Learning Content: Characteristics and names of common corrosive materials

Learning Resources:

1. Community college course on Hazardous Materials

Reference Resources:

1. NFPA Fire Protection Handbook, pp. 3-56 to 3-67
2. NFPA #49, Hazardous Chemicals Data

Task Title:	Identify Common Reactive Materials
Occupational Analysis:	Block XI, Unit B, Task 7
NFPA #1031:	4-5.2.2
Level:	1
Performance Goal:	
Given:	1. A summary of the characteristics of reactive materials 2. A listing of common examples of reactive materials
Performance:	1. Define the phrase "reactive material" 2. Identify three examples of common reactive materials
Standard:	With 70% accuracy, according to information contained in NFPA #49, Hazardous Chemicals Data
Learning Content:	Characteristics and names of common reactive materials

Learning Resources:

1. Community college course on Hazardous Materials

Reference Resources:

1. NFPA Fire Protection Handbook, pp. 3-56 to 3-67

Task Title:	Identify Common Unstable Materials
Occupational Analysis:	Block XI, Unit B, Task 7
NFPA #1031:	4-5.2.3
Level:	1
Performance Goal:	
Given:	1. A summary of the chacteristics of unstable materials 2. A listing of common examples of unstable materials
Performance:	1. Define the phrase "unstable material" 2. Identify three examples of common unstable materials
Standard:	With 70% accuracy, according to information contained in NFPA #49, Hazardous Chemical Data
Learning Content:	Characteristics and names of common unstable materials

Learning Resources:

1. Community college course on Hazardous Materials

Reference Resources:

1. NFPA Fire Protection Handbook, pp. 3-56 to 3-67

Task Title:	Identify Common Toxic Materials
Occupational Analysis:	Block XI, Unit B, Task 7
NFPA #1031:	4-5.2.4
Level:	1
Performance Goal:	
Given:	1. A summary of the characteristics of toxic materials 2. A listing of common examples of toxic materials
Performance:	1. Define the phrases "toxic materials" and "poisons" 2. Identify three examples of common toxic materials
Standard:	With 70% accuracy, according to information contained in NFPA #49, Hazardous Chemical Data
Learning Content:	Characteristics and names of common toxic and poisonous materials

Learning Resources:

1. Community college course on Hazardous Materials

Reference Resources:

1. NFPA Fire Protection Handbook, pp. 3-56 to 3-67

Task Title:	Identify Common Radioactive Materials
Occupational Analysis:	Block XI, Unit B, Task 7
NFPA #1031:	4-5.2.5
Level:	1
Performance Goal:	
Given:	1. A summary of the characteristics of radioactivity materials 2. A listing o common examples of radioactive materials
Performance:	1. Define the phrase "radioactive material" 2. Identify two examples of common radioactive materials
Standard:	With 70% accuracy, according to information contained in NFPA #49, Hazardous Chemical Data
Learning Content:	Chacteristics and names of common radioactive materials

Learning Resources:

1. Examination of instruments designed to detect radioactive emissions
2. Regional academy program on radiological monitoring
3. Community college course on Hazardous Materials

Reference Resources:

1. NFPA Fire Protection Handbook, pp. 3-125 to 3-127

Task Title:	Identify Common Oxidizing Materials
Occupational Analysis:	Block XI, Unit B, Task 7
NFPA #1031:	4-5.2.6
Level:	1
Performance Goal:	
Given:	1. A summary of the characteristics of oxidizing materials 2. A listing of common examples of oxidizing materials
Performance:	1. Define the phrase "oxidizing material" 2. Identify three examples of common oxidizing materials
Standard:	With 70% accuracy, according to information contained in NFPA #49, Hazardous Chemical Data
Learning Content:	Characteristics and names of common oxidizing materials

Learning Resources:

1. Community college course on Hazardous Materials

Reference Resources:

1. NFPA Fire Protection Handbook, pp. 3-56 to 3-67

Task Title:	Identify Fire Hazard Properties of Various Types of Plastic
Occupational Analysis:	Block XI, Unit A, Task 5
NFPA #1031:	4-5.2.7
Level:	1
Performance Goal:	
Given:	A summary of the fire hazard properties of various types of plastics, which might include: - Films - Foams - Formed articles - Beads - Filled articles - Monomers - Catalysts or initiators
Performance:	Identify the important fire hazard properties of various types of plastics, which might include: - Flammability - Products of combustion - Smoke density when burning
Standard:	With 70% accuracy, according to information contained in NFPA Fire Protection Handbook, pp. 3-76 to 3-105
Learning Content:	Types of plastics; fire hazard properties of plastics

Learning Resources:

1. Community college courses on Hazardous Materials and Fire Tactics and Strategy

Reference Resources:

1. NFPA #49, Hazardous Chemicals Data
2. Uniform Fire Code, pp. 240 to 250

Task Title:	Identify Common Combustible Metals
Occupational Analysis:	Block XI, Unit A, Task 9
NFPA #1031:	4-5.2.9.1
Level:	1
Performance Goal:	
Given:	1. A summary of the characteristics of combustible metals 2. A listing of common examples of combustible metals
Performance:	1. Define the phrase "combustible metal" 2. Identify three examples of common combustible metals
Standard:	With 70% accuracy, according to information contained in NFPA Fire Protection Handbook, pp. 3-119 to 3-127
Learning Content:	Characteristics and names of common examples of combustible metals

Learning Resources:

1. Community college course on Hazardous Materials

Reference Resources:

1. NFPA #49, Hazardous Chemicals Data
2. Uniform Fire Code, pp. 190 to 192

Task Title:	Identify Fire and Explosion Characteristics of Combustible Dusts and Name Common Examples
Occupational Analysis:	Block V, Unit A, Task 8
NFPA #1031:	4-5.2.10.1, 4-5.2.10.2
Level:	1

Performance Goal:

Given:

1. A summary of fire and explosion characteristics of combustible dusts
2. A listing of common examples of combustible dusts

Performance:

1. Identify the important fire and explosion characteristics of combustible dusts, which would include:
   - Ease of ignition
   - Size and concentration of dust particles
   - Ignition sources
   - Effect of confinement
   - Multiple explosions
2. Identify three examples of common combustible dusts

Standard: With 70% accuracy, according to information contained in NFPA Fire Protection Handbook, pp. 3-106 to 3-117

Learning Content: Characteristics and names of common combustible dusts

Learning Resources:

1. Community college courses on Hazardous Materials and Fire Tactics and Strategy

Reference Resources:

1. NFPA #49, Hazardous Chemicals Data
2. Uniform Fire Code, pp. 60 to 61
3. NFPA Inspection Manual, pp. 170 to 174

Task Title:	Describe Types, Characteristics and Capabilities of Portable Fire Extinguishers
Occupational Analysis:	Block XI, Unit B, Task 9
NFPA #1031:	4-6.1.1, 4-6.1.2, 4-6.1.4
Level:	2
Performance Goal:	
Given:	1. A summary of the characteristics and capabilities of the six major types of portable fire extinguishers, which would include: - Water (with or without additives) - Foams - Carbon dioxide - Dry chemicals - Halons - Metal powders
Performance:	1. Identify the following characteristics of portable fire extinguishers: - Common capacities - Type of extinguishing agent - UL classification (2A to 10BC) - Extinguisher symbols 2. Describe the class of fire upon which each type of extinguisher is used
Standard:	With 70% accuracy, according to information contained in NFPA Inspection Manual, pp. 277 to 288
Learning Content:	Types of portable fire extinguishers; capability of extinguishing agents; characteristics of portable fire extinguishers

Learning Resources:

1. Examples of typical portable fire extinguishers
2. Community college courses on Fire Tactics and Strategy and Fire Service Equipment and Systems

Reference Resources:

1. NFPA Fire Protection Handbook, pp. 16-1 to 16-33
2. Uniform Fire Code, pp. 91 to 94
3. NFPA #10, Portable Fire Extinguishers

Task Title:	Identify How the Operational Readiness of an Extinguisher is Basically Determined
Occupational Analysis:	Block XI, Unit B, Task 7
NFPA #1031:	4-6.1.3, 4-6.1.6
Level:	1
Performance Goal:	
Given:	A summary of the methods employed to determine the operational readiness of a portable extinguisher
Performance:	Identify how the operational readiness of a portable fire extinguisher is basically determined, which would include: - Correct time periods for hydrostatic testing - Proper tags on the extinguisher - If seals are required, they are intact - Damaged or dented extinguisher shell - Accessible and plainly indicated location - Proper distance from hazard
Standard:	With 70% accuracy, according to information contained in NFPA Inspection Manual, pp.279
Learning Content:	Basic determination of the operational readiness of a portable extinguisher

Learning Resources:

1. Examination of typical fire service extinguishers
2. Community college course on Fire Service Equipment and Systems

Reference Resources:

1. NFPA #10, Portable Fire Extinguishers
2. NFPA Fire Protection Handbook, pp. 16-1 to 16-33
3. Uniform Fire Code, pp. 91 to 94

Task Title:	Identify Basic Principles of Fixed Fire Extinguishing Systems Used to Protect Special Hazards
Occupational Analysis:	Block XI, Unit A, Task 3
NFPA #1031:	4-6.2.1
Level:	1
Performance Goal:	
Given:	A listing of the most important types of fixed fire extinguishing systems, which would include: - Dry chemical - Carbon dioxide - Foam - Foam-water - Halons
Performance:	Identify the basic types of fixed fire extinguishing systems, which would include: - Restaurant hood systems - Electrical and computer systems - Special exotic equipment
Standard:	With 70% accuracy, according to information comtained in NFPA Fire Protection Handbook, pp. 15-13 to 15-43
Learning Content:	Basic uses of major types of fixed fire extinguishing systems

Learning Resources:

1. Community college course on Fire Protection Equipment and Systems

Reference Resources:

1. Uniform Fire Code, pp.101
2. NFPA Inspection Manual, pp. 332 to 340
3. Uniform Building Code, pp. 534 to 536

Task Title:	Identify Different Types of Sprinkler Systems
Occupational Analysis:	Block V, Unit C, Task 3 Block XI, Unit A, Task 3
NFPA #1031:	4-6.3.1
Level:	1
Performance Goal:	
Given:	A summary of different types of automatic sprinkler systems
Performance:	Identify different types of sprinkler systems, which would include: - Wet-pipe sprinkler systems - Dry-pipe sprinkler systems
Standard:	With 70% accuracy, according to information contained in NFPA Fire Protection Handbook, pp. 14-17 to 14-33
Learning Content:	Basic knowledge of different types of sprinkler systems and how they may be employed

Learning Resources:

1. Community college course on Fire Protection Equipment and Systems

Reference Resources:

1. NFPA #13, Sprinkler Systems
2. NFPA Inspection Manual, pp. 300 to 324
3. Uniform Building Code, pp. 534 to 536
4. NFPA Fire Protection Handbook, pp. 14-2 to 14-16

Task Title:	Identify Basic Principles and Features of Sprinkler Systems and Appurtenances
Occupational Analysis:	Block V, Unit C, Task 3 Block XI, Unit A, Task 3
NFPA #1031:	4-6.3.2
Level:	1

Performance Goal:

Given:

1. A summary of the basic principles underlying the operation of an ordinary sprinkler system
2. A summary of the important parts of an automatic sprinkler system and how these parts operate during sprinkler system employment

Performance: Identify the principles of operation and the important parts of a sprinkler system, which would include a consideration of:

- Sprinkler heads (various designs)
- Piping
- Hangers and bracing
- Control valves and alarms
- Water-flow alarm devices
- Indicator post valves
- Check valves
- Water sources (tanks, pumps, public water connections)
- Test pipes and drains

Standard: With 70% accuracy, according to information contained in NFPA Inspection Manual, pp. 300 to 324

Learning Content: Basic principles of sprinkler system operations; important component parts of a sprinkler system - their interrelationship and function

Learning Resources:

1. Community college course on Fire Protection Equipment and Systems

Reference Resources:

1. NFPA #13, Sprinkler Systems, pp. 13-27 to 13-65

2. NFPA Fire Protection Handbook, pp. 14-2 to 14-16 and 14-34 to 14-57

3. Uniform Building Code, pp. 534 to 536

4. Uniform Fire Code, Appendix G, pp. 282 to 284

Task Title:	Identify Standpipes and Hose Systems:
Occupational Analysis:	Block XI, Unit B, Task 3
NFPA #1031:	4-6.4.1, 4-6.4.4
Level:	1
Performance Goal:	
Given:	A summary of the different types of standpipes and hose systems
Performance:	Identify the different types of standpipes and hose systems, which would include: - Wet standpipe systems - Dry standpipes systems - Combined sprinkler and standpipe systems - Outside hose systems (hose and hydrant hose, hose carriers)
Standard:	With 70% accuracy, according to information contained in NFPA Fire Protection Handbook, pp. 15-2 to 15-7
Learning Content:	Identify standpipe and hose systems

Learning Resources:

1. Community college course on Fire Protection Equipment and Systems

Reference Resources:

L. NFPA #14, Standpipe and Hose Systems

2. NFPA Inspection Manual, pp. 325 to 331

3. Uniform Building Code, pp.536 to 541

4. Uniform Fire Code, Appendix G, pp. 283 to 284

Task Title:	Identify Operation, Basic Principles and Component Parts of Standpipe and Hose Systems and Appurtenances
Occupational Analysis:	Block XI, Unit B, Task 3
NFPA #1031:	4-6.4.2, 4-6.4.3
Level:	1
Performance Goal:	
Given:	1. A summary of the basic principles underlying the operation of a standpipe or hose system 2. A summary of the basic component parts of a standpipe or hose system
Performance:	Describe the principles and component parts of a standpipe or hose system, which would include: - Sources of water supplies - Pipe and tubing - Nozzles, hose and hose cabinets - Valves - Fire department connections - Gauges
Standard:	With 70% accuracy, according to information contained in NFPA #13A, Standpipe and Hose Systems, pp. 14-10 to 14-25
Learning Content:	Operational principles of standpipe and hose systems

Learning Resources:

1. Community college course on Fire Protection Equipment and Systems

Reference Resources:

1. NFPA Fire Protection Handbook, pp. 15-2 to 15-7
2. NFPA Inspection Manual, pp. 325 to 331
3. Uniform Building Code, pp. 536 to 541
4. Uniform Fire Code, Appendix G, pp. 283 to 284

Task Title:	Identify The Purposes of Private Water Systems
Occupational Analysis:	Block IV, Unit C, Task 2
NFPA #1031:	4-6.5.1, 4-6.5.2
Level:	1
Performance Goal:	
Given:	A summary of the reasons why connections would be made between public and private water systems
Performance:	Identify the reason for private water supply sytems, which would include: - Automatic sprinkler systems - Standpipes for hand hose or fire department use - Open sprinklers - Yard systems with private hydrants - Fire pumps - Private storage reservoirs or tanks for fire fire protection
Standard:	With 70% accuracy, according to information contained in NFPA Inspection Manual, pp. 341 to 355
Learning Content:	Identification of the Purposes of Private Water Systems

Learning Resources:

1. Community college course on Fire Hydraulics

Reference Resources:

1. NFPA Fire Protection Handbook, pp. 11-23

Task Title:	Identify Heat and Smoke Detection Systems and Devices
Occupational Analysis:	Block III, Unit I, Task 4 Block XI, Unit A, Task 3
NFPA #1031:	4-6.6.1, 4-6.6.2
Level:	1
Performance Goal:	
Given:	A summary of the basic principles and types of heat and smoke detectors, which would include: - Fixed temperature detectors - Rate-of rise detectors - Combined rate of rise and fixed-temperature detectors - Photoelectric detectors - Ionization detectors
Performance:	Identify the basic principles of different types of heat and smoke detection devices and systems, which would include their sensitivity to: - Abnormally high temperatures - Rate-of-temperature rise - Visible or invisible particles
Standard:	With 70% accuracy, according to information contained in NFPA Fire Protection Handbook, pp. 12-16 to 12-22
Learning Content:	Operational principles of heat and smoke detection devices and systems

Learning Resources:

1. Community college course on Fire Protection Equipment and Systems

Reference Resources:

1. Publications produced by companies which manufacture or install detection devices and systems
2. Listing of approved detection systems and devices published by the State Fire Marshal's Office

3. NFPA Inspection Manual, pp. 296 to 297

4. Uniform Building Code, pp. 90 and 94

Task Title:	Identify Basic Classifications and Functions of Local Fire Alarm Systems and Devices
Occupational Analysis:	Block XII, Unit B, Task 8
NFPA #1031:	4-6.7.1, 4-6.7.2, 4-6.7.6
Level:	1
Performance Goal:	
Given:	A summary of the basic classifications and functions of local fire alarm systems and devices
Performance:	1. Describe the basic classification of protective signalling systems, which would include: - Method of operation - manual or automatic - Location - central station, local, auxiliary, remote station, proprietary, household fire warning 2. Describe the basic functions of local fire alarm systems and devices, which would include: - Notification for evacuation - Summoning organized assistance - Supervising extinguishing systems - Supervising processes - Supervising personnel - Actuating fire control equipment
Standard:	With 70% accuracy, according to information contained in NFPA Fire Protection Handbook, pp. 12-9 to 12-15
Learning Content:	Classification and functions of local fire alarm systems and devices

Learning Resources:

1. Community college courses on Fire Protection Equipment and Systems and Fire Communication Systems

Reference Resources:

1. Publications produced by companies which manufacture or install

local fire alarm devices and systems

2. NFPA Inspection Manual, pp. 289 to 299

3. Uniform Building Code, pp. 90 and 94

Task Title:	Identify Principle Functions of Municipal Fire Alarm Systems
Occupational Analysis:	Block XII, Unit B, Task 8
NFPA #1031:	4-6.7.4
Level:	1
Performance Goal:	
Given:	A summary of the basic parts of a municipal fire alarm system, which would include a consideration of: - Municipal fire alarm systems - Fire alarm boxes and box circuits
Performance:	1. Describe the principal functions of a municipal fire alarm system 2. Describe how notification is given in various situations
Standard:	With 70% accuracy, according to information contained in NFPA Fire Protection Handbook, pp. 12-2 to 12-8
Learning Content:	Basic features of a municipal fire alarm system

Learning Resources:

1. Community college course on Fire Communication Systems

Reference Resources:

1. NFPA Inspection Manual, pp. 298

Task Title:	Identify Fire Hazards and Safeguards for Heating and Cooking Equipment
Occupational Analysis:	Block XI, Unit B, Task 4
NFPA #1031:	4-7.1, 4-7.2
Level:	1
Performance Goal:	
Given:	1. A summary of the fire hazards relating to heating and cooking equipment 2. A summary of the fire safeguards for heating and cooking equipment
Performance:	1. Identify the fire hazards relating to heating and cooking equipment, which would include: - Defective heating and cooking equipment - Overheated equipment - Defective flues and chimneys - Hot ashes and coals - Combustibles near heaters and stoves 2. Identify the fire safety safeguards relating to heating and cooking equipment, which would include: - Protection of exposed combustible surfaces - Safe storage and handling of fuels and ashes - Maintenance of pilot lights
Standard:	With 70% accuracy, according to information contained in NFPA Inspection Manual, pp. 58 to 71
Learning Content:	Fire hazards and fire safety safeguards for heating and cooking equipment

Learning Resources:

1. Community college course on Building Construction for Fire Protection

Reference Resources:

1. Publications of manufacturers of heating and cooking equipment detailing built-in fire protection features

2. IFSTA Manual #110, pp. 144 to 145

3. Uniform Fire Code, pp. 224 to 225

4. Uniform Building Code, pp. 91 and 94

5. NFPA Fire Protection Handbook, pp. 7-35 to 7-65 and 1-26

Task Title:	Identify Electrical Fire and Life Hazards and Identify Safety Devices
Occupational Analysis:	Block XI, Unit B, Task 5
NFPA #1031:	4-8.2, 4-8.3
Level:	1
Performance Goal:	
Given:	1. A summary of fire and life hazards relating to electricity 2. A summary of safety devices and pracitces relating to electrical
Performance:	1. Identify the fire and life hazards relating to electricity, which would include a condideration of: - Arcing - Spark production - Overheating - Overloading - Static electricity - Lightning 2. Identify the safety devices and practices relating to electricity, which would include a consideration of: - Overcurrent protection - Grounding and bonding - Protecting flexible cords - Protecting lamps and portable lamps 3. Identify the basic source of information about electrical hazards - NFPA #70
Standard:	With 70% accuracy, according to information contained in NFPA Inspection Manual, pp. 128 to 145
Learning Content:	Fire and life hazards associated with the typical uses of electricity and electrical systems; safety devices protecting electrical systems

Learning Resources:

1. Community college course on Building Construction for Fire Protection

Reference Resources:

1. NFPA #70, Electrical Code

Task Title:	Identify Factors Relating to Life Safety in Buildings
Occupational Analysis:	Block XI, Unit A, Task 9
NFPA #1031:	4-9.1.1
Level:	1
Performance Goal:	
Given:	A summary of the factors relating to life safety which might occur in occupancies of various kinds, which would include: - Public assembly - Residential - Business - Mercantile - Office - Storage - Industrial - Manufacturing - Utility
Performance:	Describe the fundamental factors which are related to life safety in buildings, which would include: - Overcrowding - Condition and age of people - Occupancy hazard - Means of egress - Protective fire equipment and systems - Maintenance and visibility of exits - Basic construction methods
Standard:	With 70% accuracy, according to information contained in NFPA Inspection Manual, pp. 208 to 209
Learning Content:	Fundamental factors relating to life safety in buildings

Learning Resources:

1. Community college course on Building Construction for Fire Protection

Reference Resources:

1. NFPA Fire Protection Handbook, pp. 8-2 to 8-46

2. NFPA #101, Life Safety Code

3. Uniform Building Code, pp. 495 to 521

Task Title:	Identify Means of Egress Requirements
Occupational Analysis:	Block XI, Unit A, Tasks 1 and 2
NFPA #1031:	4-9.1.2.1
Level:	1
Performance Goal:	
Given:	A summary of the kinds of exits which may be employed in various occupancies
Performance:	Identify the kinds of exits and basic considerations relating to life safety for each kind of exit, which would include: - Doors - Horizontal exits - Stairs - Ramps - Fire escapes - Escalators - Elevators - Windows - Ropes and portable ladders
Standard:	With 70% accuracy, according to information contained in NFPA Inspection Manual, pp. 210 to 211 and 218 to 225
Learning Content:	Basic considerations relating to different kinds of exits

Reference Resources:

1. Uniform Building Code, pp. 495 to 520
2. NFPA Fire Protection Handbook, pp. 8-2 to 8-46 and 6-89 to 6-104
3. IFSTA Manual #110, pp. 106 to 107
4. Uniform Fire Code, Article 10
5. NFPA #101, Life Safety Code

Task Title:	Describe Relationship of Fire Protection and Life Safety to Building Construction
Occupational Analysis:	Block XI, Unit A, Task 8
NFPA #1031:	4-9.1.4.1
Level:	1
Performance Goal:	
Given:	A summary of the elements of building design and construction features influencing fire safety
Performance:	Describe the elements of building design and construction features influencing life safety, which would include a consideration of: - Fire propogation - Detection, alarm and communication - People movement - Suppression systems - Structural integrity - Fire emergency access - Types of occupancies
Standard:	With 70% accuracy, according to information contained in Uniform Building Code, pp. 54 to 58 and NFPA Fire Protection Handbook, pp. 6-2 to 6-4
Learning Content:	Basic elements of building design and construction affecting fire safety

Learning Resources:

1. Community college course on Building Construction for Fire Protection

Reference Resources:

1. Uniform Building Code, Chapters 33 and 38
2. IFSTA Manual #110, pp. 89 to 117
3. NFPA Fire Protection Handbook, pp. 6-5 to 6-110

Task Title:	Define Purposes of Fire Doors, Windows, Shutters and Closing Devices
Occupational Analysis:	Block XI, Unit A, Task 8
NFPA #1031:	4-9.1.4.3, 4-9.1.4.4
Level:	1
Performance Goal:	
Given:	A summary of how openings in walls are protected
Performance:	Define the purpose of fire doors, windows, shutters and closing devices
Standard:	With 70% accuracy, according to information contained in NFPA Inspection Manual, pp. 253 to 262
Learning Content:	Purposes of fire doors, windows, shutters and closing devices

Learning Resources:

1. Examination of fire doors, windows, shutters and closing devices
2. Community college course on Fire Protection Equipment and Systems

Reference Resources:

1. NFPA Fire Protection Handbook, pp. 6-82 to 6-86
2. Uniform Building Code, Sections 503 and 4306
3. IFSTA Manual #110, pp. 89 to 117

Task Title:	Identify Building Construction Components
Occupational Analysis:	Block XI, Unit A, Task 8
NFPA #1031:	4-9.1.4.6, 4-13.4
Level:	1
Performance Goal:	
Given:	A summary of the purposes of building construction components installed for fire related reasons
Performance:	1. Identify the basic purposes and features of building construction components installed to prevent the horizontal spread of fire, which would include: - Fire walls, division walls and partitions - Curtain boards 2. Identify the basic purposes and features of building construction components installed to prevent the vertical spread of fire, which would include: - Fire stops - Smoke vents - Vertical shafts
Standard:	With 70% accuracy, according to information contained in NFPA Inspection Manual, pp. 245 to 253
Learning Content:	Basic features and purposes of building construction components

Learning Resources:

1. Community college course on Building Construction for Fire Protection

Reference Resources:

1. NFPA Inspection Manual, pp. 98 to 113
2. NFPA Fire Protection Handbook, pp. 6-31 and 6-80 to 6-88

Task Title:	Identify Basic Fire Hazards of Building Service Equipment
Occupational Analysis:	Block XI, Unit B, Task 1
NFPA #1031:	4-9.1.5.1
Level:	1
Performance Goal:	
Given:	A summary of the basic fire hazards relating to building services, which would include: - Potential fuel sources - Avenues for the spread of fire and smoke - Creation of sparks and other ignition sources
Performance:	Identify the basic fire hazards of building services, which would include: - Electrical systems and appliances - Heating systems and appliances - Air conditioning and ventilation systems - Air-moving equipment - Refuse handling systems and equipment - Water circulation systems - Electrical stairways - Vertical shafts and openings
Standard:	With 70% accuracy, according to informantion contained in NFPA Fire Protection Handbook, pp. 7-2
Learning Content:	Basic knowledge of the types of building service equip nt and systems which might affect fire protection and life safety

Learning Resources:

1. Community college course on Building Construction for Fire Protection

Reference Resources:

1. NFPA Fire Protection Handbook, pp. 7-2 to 7-91
2. NFPA Inspection Manual, pp. 72 to 97, 107 to 112, and 263 to 270

Task Title:	Identify General Fire Safety Practices
Occupational Analysis:	Block XI, Unit A, Tasks 1 and 2
NFPA #1031:	4-10.1
Level:	1
Performance Goal:	
Given:	A summary of general fire safety practices, which would include: - Disposal of trash and debris - Smoking - Open burning - Maintaining fire department access - Housekeeping procedures - Limiting combustible decorations and furnishings
Performance:	Identify general fire safety practices, which would include a consideration of: - Restrictions on smoking - Use of waste cans, ash cans and refuse receptacles - Proper employment of packing materials and sawdust - Storage of old furniture, paper, floor oils, polishes and cleaners - Outdoor housekeeping and storage - Fire protection
Standard:	With 70% accuracy, according to information contained in NFPA Inspection Manual, pp. 33 to 48
Learning Content:	Basic knowledge of general fire safety practices

Learning Resources:

1. Community college course on Related Code and Ordinances

Reference Resources:

1. NFPA Fire Protection Handbook, pp. 5-75 to 5-80
2. Uniform Fire Code, Appendix E, pp. 273 to 279

Task Title:	Identify the Responsibilities of Fire Prevention Personnel
Occupational Analysis:	Block XI, Unit A, Task 2
NFPA #1031:	4-11.1.8
Level:	1
Performance Goal:	
Given:	A summary of the responsibilities of fire prevention personnel
Performance:	Identify the responsibilities of fire prevention personnel, which would include: - Prevention of fires - Storage, use and handling of hazardous materials - Installation and maintenance of automatic, manual and other private alarm systems and extinguishing equipment - Maintenance and regulation of fire escapes - Maintenance of fire protection - Elimination of fire hazards - Means and adequacy of exits in various occupancies - Investigation of cause, origin and circumstances of fire
Standard:	With 70% accuracy, according to information contained in Uniform Fire Code, pp. 12 to 20
Learning Content:	Basic understanding of moral and legal responsibilities of fire prevention personnel

Learning Resources:

1. Community college courses on Related Codes and Ordinances

Reference Resources:

1. NFPA Inspection Manual, pp. 21 to 24
2. Bare, Fundamentals of Fire Prevention, John Wiley & Sons
3. NFPA Fire Protection Handbook, Appendix D, pp. A-30 to A-34
4. IFSTA Manual #110, pp. 7 to 8 and 15 to 16

Task Title: Identify Essential Equipment for Code Enforcement Procedures

Occupational Analysis: Block XI, Unit A, Tasks 1 and 2

NFPA #1031: 4-11.3.1

Level: 1

Performance Goal:

Given: A summary of the essential equipment needed for code enforcement procedures

Identify the essential equipment which may be needed for code enforcement procedures, which would include:

- Portable flamable and combustible atmospheric detection equipment
- Coveralls, overshoes or rubber boots
- Notebook and notepaper
- Clipboard binder
- Necessary inspection and survey forms
- Pen and pencils
- Flashlight
- Engineer's scale
- 50 foot tape
- Gages and connections (for flow tests)
- Camera with flash attachment

Standard: With 70% accuracy, according to information contained in NFPA Inspection Manual, pp. 1 and 2

Learning Content: Essential equipment for conducting code enforcement procedures

Learning Resources:

1. Examples of essential equipment employed during code enforcement procedures

Reference Resources:

1. IFSTA Manual #110. pp. 128 to 129

Task Title:	Describe Construction Methods and Materials Affecting Fire and Fire Spread
Occupational Analysis:	Block V, Unit A, Task 13 Block XI, Unit A, Task 8
NFPA #1031:	7-2.10, 7-2.11
Level:	1
Performance Goal:	
Given:	1. A summary of building materials which may have to retain structural integrity during a fire, which would include: - Structural steel - Reinforced concrete - Prestressed concrete - Wood - Glass - Gypsum - Lightweight concrete - Asbestos - Masonry - Plastics 2. A summary of the reactions of common building materials to fire and heat
Performance:	Describe the reactions of common building materials to fire exposure and elevated temperatures
Standard:	With 70% accuracy, according to information contained in NFPA Inspection Manual, pp. 245 to 252
Learning Content:	Basic knowledge of the reactions of building materials to fire and heat

Learning Resources:

1. Community college course on Building Construction for Fire Protection

Reference Resources:

1. Uniform Building Code, pp. 47 to 53
2. IFSTA Manual #110, pp. 97 to 109

3. NFPA Fire Protection Handbook, pp. 2-2 to 2-13 and 6-52 to 6-56

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